REMARKS

STATUS OF THE CLAIMS

Claims 56-107 are pending in the present application. By virtue of this response, claims 57 and 86 have been cancelled and claims 56, 87, 101 and 102 have been amended. After entry of these amendments, claims 56, 58-85 and 87-107 will be pending.

With respect to all amendments and cancelled claims, Applicants have not dedicated or abandoned any unclaimed subject matter and moreover have not acquiesced to any rejections and/or objections made by the U.S. Patent and Trademark Office. Applicants reserve the right to pursue prosecution of any presently excluded claim embodiments in future continuation and/or divisional applications.

CLAIM AMENDMENTS

Applicants have amended claim 56 to recite the limitation, "wherein the calcium or magnesium catalyst is not calcium carbonate, calcium phosphate, or magnesium carbonate," which was previously recited claim 86. Claim 86 has been cancelled accordingly. Support for this amendment may be found, *e.g.*, on page 7, lines 7-8 of the application as filed.

Claims 57 and 86 have been cancelled.

Claim 87 has been amended to depend from claim 56 in view of the cancellation of claim 86 and amendment to claim 56.

Claims 101 and 102 have been amended to recite a range of 0.4 to 8% and 0.4 to 4%, respectively. Support for these amendments may be found, e.g., on page 6, lines 16-24.

CLAIM REJCTIONS AND OBJECTIONS

Initial Comments

Prior to a discussion of the present rejections, Applicants first address the U.S. Patent and Trademark Office's prior evaluation of U.S. Patent No. 5,109,094 to Rees, the same reference used throughout the present rejections. The present application is a continuation-in-part of U.S. Patent Application No. 10/308,562, now issued as U.S. Patent No. 6,818,721. In the Notice of Allowability issued in U.S. Patent No. 6,818,721, the claims were held allowable over U.S. Patent No. 5,109,094 to Rees, because the reference **"does not teach or fairly suggest a catalyst system set forth in the present invention."** That is, during the prosecution of U.S. Patent No. 6,818,721, the U.S. Patent and Trademark Office correctly recognized the inventive aspects of the claimed invention over U.S. Patent No. 5,109,094 to Rees.

As set forth in detail below, the present claims should be allowed. Claim 56, from which each of the remaining pending claims depend, recites the same limitations as those in claim 1 of parent U.S. Patent No. 6,818,721, plus the further limitation that the ratio of a silicone compound to the silanol compound are in the molar ratio of from 1:2 to 2:1. The present claims, like the claims of U.S. Patent No. 6,818,721, are allowable over U.S. Patent No. 5,109,094 to Rees.

The present Examiner has erred in the characterization of the present claims in view of U.S. Patent No. 5,109,094. Applicants respectfully request the present Examiner to reconsider in view of the comments herein and allow the presently pending claims.

Claim Objections

Claims 100-102 are objected to under 37 C.F.R. 1.75(c), as allegedly being in improper dependent form for failing to further limit the subject matter of a previous claim. Claim 101 depends from claim 100, which recites solvent employed in an amount of 0.4 to 50% by mole based on the total silicon containing compounds. In response to the present objection, claims 101 and 102 have been amended to recite a range of 0.4 to 8% and 0.4 to 4% by mole based on the total silicon

containing compounds, respectively. These amendments render the objection moot and Applicants respectfully request withdrawal of the present objection.

Rejections under 35 U.S.C. § 102

Claims 56-69, 72-75, 78, 86-88, 90 and 92-107 are rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 5,109,094 to Rees et al. ("the '094 patent"). Applicants respectfully traverse this rejection on the basis that the cited reference does not disclose each and every limitation of the rejected claims.

Independent claim 56, from which the remaining claims in the present rejection depend, recites, *inter alia*, a process for the preparation of an organosilicon condensate which comprises reacting together: (A) at least one silicon containing compound having at least one silanol group; (B) at least one silicon containing compound having at least one –OR group; (C) a calcium or magnesium catalyst; and (D) at least one protic solvent. The Examiner contends that the '049 patent discloses all of the claimed ingredients and thus anticipates the rejected claims. Applicants respectfully disagree.

The present rejection over the '049 patent should be withdrawn because the cited reference fails to teach each and every limitation of the rejected claims, which is required in order to establish a proper rejection under 35 U.S.C. § 102(b). The '049 patent fails to disclose at least two aspects of the claimed invention. Specifically, the claims of the present application define the discovery of an effective catalyst system which is formed by a combination of a protic solvent with a magnesium or calcium catalyst. The '094 patent teaches away from the use of a protic solvent and fails to recite magnesium or calcium catalysts for use in the reaction ≡Si-OH + ≡Si-OR.

The '094 patent does not disclose a process for the preparation of an organosilicon condensate which comprises reacting together: (A) at least one silicon containing compound having at least one silanol group; (B) at least one silicon containing compound having at least one –OR group; (C) a calcium or magnesium catalyst; and (D) at least one protic solvent, as required by the present claims. Rather, the '049 patent is primarily concerned with the condensation of hydroxy

terminated siloxanes, *i.e.,* a condensation of a ≡Si-OH compound with a ≡Si-OH compound. The '049 patent states in column 3, lines 23 and 24 that calcium, magnesium, strontium or barium hydroxides may be employed as catalysts and at column 3, lines 33-34 that "[t]he process of this invention involves contacting the organosilicon compound (A) with the catalyst (B) at a temperature at which the desired rate of molecular weight increase occurs." Although the '049 patent does contemplate including alkoxysilanes, *i.e,*. ≡Si-OR as an option (see column 4, lines 27 to 42 and Example 3) it does not necessarily follow that all four mentioned catalysts will work for the condensation of ≡Si-OH + ≡Si-OR. In column 4, lines 42 to 46, the '049 patent states that strontium and barium hydroxides do work for the condensation of ≡Si-OH + ≡Si-OR but is wholly silent in respect of calcium and magnesium hydroxides. Thus, while Applicants do not dispute that the '049 patent includes the option of an organosilicon compound with at least one OR group, (i.e. an alkoxysilane, ≡Si-OR), the Applicants respectfully disagree with the Examiner that the reference discloses the specific condensation between a silanol and an alkoxysilane under the catalyst of magnesium or calcium compounds. The '049 patent states that:

> "catalysts for the reaction ≡Si-OH + ≡Si-OR may be added if desired to expedite the reaction between the alkoxysilane and the silanol containing organosilicon product. We have however found that said reaction is catalysed by strontium hydroxide and barium hydroxide and that *the addition of other catalyst substances is unnecessary* when such hydroxides are present in the reaction mixture."

Column 4, lines 38 to 46 (emphasis ours). Thus, when discussing the reaction of ≡Si-OH and ≡Si-OR, the '049 patent is wholly silent as to the use of magnesium or calcium catalysts. In fact, Applicants submit that the above statement implies that the ≡Si-OH and ≡Si-OR reaction does not occur in the presence of catalysts other than strontium hydroxide and barium hydroxide. There is no enabling disclosure in the '049 patent for the reaction ≡Si-OH and ≡Si-OR in the presence of a magnesium or calcium catalyst. Moreover, by omitting calcium and magnesium compounds in the discussion of such reactions and noting that "the addition of other catalyst substances is unnecessary," the '049 patent in fact teaches away from the use of the catalysts required by the

rejected claims. For this reason alone, the rejection over the '049 patent is improper and should be withdrawn.

A further aspect of the claimed invention, the use of at least one protic solvent, is likewise not disclosed by the '049 patent. The Examiner states that "during the reaction [of the '049 patent] water is formed and is present in the reaction mixture." However, the reaction of the present claims will not proceed without a protic solvent – a protic solvent must be present at all times, including at the beginning of the reaction. It is irrelevant whether the ≡Si-OH + ≡Si-OH reactions of the '049 patent produce water because the condensations of the present claims, ≡Si-OH + ≡Si-OR, will not commence without the addition of a protic solvent, which is not taught by the '049 patent. To the contrary, as can be seen in column 3, lines 42 to 46 and in all of the examples of the '049 patent, water is removed, and removed quickly as soon as it is formed. This indicates that water is undesirable to the reaction and teaches away from the present invention where the initial addition of a protic solvent is essential.

The laws of equilibrium would indicate that the removal of water in the '049 patent would drive the reaction to completion. A person skilled in the art would expect that the presence of the reaction by-product (water) in the '049 patent's process would reduce the reaction rate and dilute the system, rather than increase it as is seen in the present application.

The claims of the present application define the discovery of an effective catalyst system which is formed by a combination of a protic solvent with a magnesium or calcium compound, which combination is not disclosed by the '049 patent. The criticality of the protic solvent can be seen in the Examples of the present application. Applicants draw the Examiner's attention to Table 1 of the present application where it can be seen that in the absence of a solvent or even in the absence of a protic solvent (when the reaction is carried out in acetone or dichloromethane) the reaction simply does not proceed. The use of magnesium or calcium catalysts alone are ineffective as catalysts for the ≡Si-OH + ≡Si-OR reaction unless a protic solvent is present.

Any person trying to follow the teaching of the '049 patent, which does not mention a protic solvent apart from the teaching that water should be removed and is therefore undesirable, would not be able to make the ≡Si-OH + ≡Si-OR reaction proceed.

The '049 patent does not teach at least two aspects of the claimed invention: (1) the use of a calcium or magnesium catalyst for the condensation reaction ≡Si-OH + ≡Si-OR and (2) the requirement for a protic solvent. The combination of these aspects is essential and recited in the present claims. It follows that the '049 patent does not teach each and every limitation of the present claims and Applicants respectfully request withdrawal of the 35 U.S.C. § 102 rejection over the '049 patent.

Rejections under 35 U.S.C. § 103

Claims 56, 72 and 73

Claims 56, 72 and 73 appear rejected under 35 U.S.C. § 103 over the '049 patent.

Any assertion that it would have been obvious to a person of ordinary skill in the art to use a calcium or magnesium catalyst *and* to use a protic solvent as recited in the present claims in view of the process disclosed in the '049 patent can only be made in the glare of hindsight. Not only would a person skilled in the art need to make the discovery that if a magnesium or calcium catalyst were used, then a protic solvent would also need to be used, but this would have been made contrary to the explicit teaching in the '049 patent, at column 3 lines 42-46 which states that "preferably also, the removal of water formed during the condensation reaction is accelerated by carrying out the process under reduced pressure, that is, at a pressure less than normal atmospheric pressure and most preferably less than 0.5 bar." The reactions of all six examples in the '049 patent are carried out under conditions where water is avoided, and where any water formed is removed as soon as it is formed. Further, since most common solvents such as methanol, ethanol, isopropanol, acetone, tetrahydrofuran, dichloromethane, etc., are more volatile than water, these solvents could not in fact have been present.

The '049 patent does not teach any solvent, and it would be reasonable for a skilled person to conclude that the '049 patent views solvents as unnecessary and undesirable diluents. The fact that the '049 patent carries out reactions under reduced pressure teaches those skilled in the art that it is critical to remove low boiling components such as solvents and especially water, as by-products as soon as possible. Thus, the '049 patent actually teaches away from dilution or the addition of water and other protic solvents. This is totally contrary to the presently claimed methods, which require a protic solvent. Accordingly, the present rejection is improper and Applicants respectfully request withdrawal of the 35 U.S.C. § 103 rejection of claims 56, 72 and 73 over the '049 patent.

Although it is unclear from the Office Action whether the same rejection is applied to other claims solely on the basis of the '049 patent (e.g., see reference to claims 60, 67m 68 and 69 page 6), the same basis for traversal exists with respect to all claims and the arguments above are understood to apply to all such rejections.

Claims 76, 77

Claims 76, 77 stand rejected as allegedly obvious over the '049 patent further in view of U.S. Patent No. 4,395,563 to Hayes ("the '563 patent"). Applicants traverse this rejection on the basis that the '049 patent does not suggest at least two aspects of the claimed invention: (1) the use of a calcium or magnesium catalyst and (2) a protic solvent, as detailed above. The '563 patent does not cure the deficiencies of the '049 patent. That is, although the '563 patent discloses the use of tri and tetra alkoxysilanes to produce polysiloxanesilanols (col. 5, lines 17-21), it does not provide a remedy for the lack of teachings in the '049 patent with respect to the effective catalyst system of the instant invention comprising a protic solvent and a magnesium or calcium catalyst. Accordingly, the rejection of claims 76 and 77 is improper and the Applicants respectfully request withdrawal of the 35 U.S.C. § 103 rejection of claims 76 and 77 over the '049 patent in view of the '563 patent.

Claims 79-82

Claims 79-82 stand rejected as allegedly obvious over the '049 patent further in view of the '563 patent. Applicants traverse this rejection on the basis that the '049 patent does not suggest at least two aspects of the claimed invention: (1) the use of a calcium or magnesium catalyst and (2) a protic solvent, as detailed above. The '563 patent does not cure the deficiencies of the '049 patent. That is, although the '563 patent discloses the use of a crosslinkable group, it does not provide a remedy for the lack of teachings in the '049 patent with respect to the effective catalyst system of the instant invention comprising a protic solvent and a magnesium or calcium catalyst. Accordingly, the rejection of claims 79-82 is improper and the Applicants respectfully request withdrawal of the 35 U.S.C. § 103 rejection of claims 79-82 over the '049 patent in view of the '563 patent.

Claims 89 and 91

Claims 89 and 91 stand rejected as allegedly obvious over the '049 patent further in view of the '563 patent. Applicants traverse this rejection on the basis that the '049 patent does not suggest at least two aspects of the claimed invention: (1) the use of a calcium or magnesium catalyst and (2) a protic solvent, as detailed above. The '563 patent, as noted, does not cure the deficiencies of the '049 patent. Accordingly, the rejection of claims 89 and 91 is improper and the Applicants respectfully request withdrawal of the 35 U.S.C. § 103 rejection of claims 89 and 91 over the '049 patent in view of the '563 patent.

Claims 70 and 71

Claims 70 and 71 stand rejected under 35 USC § 103(a) as allegedly obvious over the '094 patent and further in view of U.S. Patent Application No. US 2003/0216537 to Friedrich ("the '537 application"). Applicants traverse this rejection on the basis that the '049 patent does not suggest at least two aspects of the claimed invention: (1) the use of a calcium or magnesium catalyst and (2) a protic solvent, as detailed above. The '537 application does not cure the deficiencies of the '049 patent. That is, even if the '537 application teaches styrenic, acrylate and epoxy groups attached to silanol compounds used in certain silicone polycondensates, it does not

remediate the deficiencies of the '049 patent with respect to the effective catalyst system as claimed by Applicants. Accordingly, the rejection of claims 70 and 71 is improper and the Applicants respectfully request withdrawal of the 35 U.S.C. § 103 rejection of claims 70 and 71 over the '049 patent in view of the '537 application.

Claims 83-85

Claims 83-85 stand rejected under 35 USC § 103(a) as allegedly obvious over the '094 patent and further in view of PCT Publication No. WO 01/04186 to Roscher ("the '186 publication"). Applicants traverse this rejection on the basis that the '049 patent does not suggest at least two aspects of the claimed invention: (1) the use of a calcium or magnesium catalyst and (2) a protic solvent, as detailed above. The '186 publication does not cure the deficiencies of the '049 patent. That is, disclosures in the '186 publication with respect to 3-methacryloxypropyltrimethoxysilane and epoxy containing alkoxides it does not remediate the deficiencies of the '049 patent with respect to the effective catalyst system as claimed by Applicants. Accordingly, the rejection of claims 83-85 is improper and the Applicants respectfully request withdrawal of the 35 U.S.C. § 103 rejection of claims 83-85 over the '049 patent in view of the '186 publication.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to ***Deposit Account No. 03-1952*** referencing docket no. **304122001100**. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Dated: December 12, 2007

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